REMARKS:

The claims in the application are now 1, 2, 6-10, 14-17, 22-24 and Claim 25 added by the present Amendment.

Favorable reconsideration of the application as amended is respectfully requested.

Independent Claim 1 has been amended to incorporate recitation from originally-filed Claims 3 and 5 and previously-presented Claim 21 which have been all cancelled without prejudice. Additionally, independent Claim 1 has been amended to recite the flat single filament has W-shaped, ellipse, rectangle or hourglass cross-section; support for this recitation can be found, e.g., at page 6, lines 4-14 of the present application.

Claim 2 has been amended to correct a minor misspelling while Claim 6 has been amended to change dependency. Independent method Claim 9 has been amended in similar fashion to independent Claim 1and to additionally recite the metal coating treating is electroless plating (support for this recitation can be found at page 10, line 2 and in Example 1 on page 14 of the present application). Claim 14 has also been amended to change dependency with Claim 20 cancelled to avoid undue repetition with independent Claim 9.

Claims 4, 11-13 and 18 have been cancelled to reflect the amendment to the independent claims supra, with Claim 25 introduced herein essentially directed to a combination of originally-presented Claims 2, 6 and 7. It is therefore quite clear the

present amendment to the claims finds unequivocal support throughout the present application. Accordingly, the only outstanding issue is the art rejection of the claims.

Claims 1-18 and 20-24 have now been rejected under 35 U.S.C. § 103 as obvious over previously-cited U.S. Pat. No. 6,387,523 to Bunyan et al in view of newly-cited U.S. Pat. No. 6,147,017 to Fastenau et al in paragraph 3 of the final Office Action. It is explicitly stated in paragraph 4 of the final Office Action, submitting a Declaration comparing performance of the EMI fabric claimed in Claim 21 against the prior art fabric, would facilitate withdrawal of the rejection of that claim.

Accordingly, the recitation found in Claim 21 has been incorporated into both independent Claims 1 and 9. In this regard, an executed Declaration by joint inventor Susumu Takagi is enclosed. In paragraph 6 of his Declaration, Mr. Takagi points out the comparative testing presented in Table 1 of the present application has been carried out under his direction and control, and documents preparing a thin, uniform and flexible conductive fabric also possessing high EMI shielding performance over a wide frequency range as opposed to a comparative chemically-plated fabric which does not possess several of these claimed parameters.

Furthermore, Mr. Takagi points out, in paragraphs 8 and 9 of his Declaration, Bunyan et al fails to disclose a flat multifilament yarn or yarn composed of flat thermoplastic filaments while Fastenau et al contain no suggestion about metal-coated fabric. More particularly, as stated by Mr. Takagi in paragraph 10 of his Declaration, Bunyan et al simply form a flame retardant EMI shielding fabric having an electrically conductive first side and a conductive or non-conductive second side, it

being even acknowledged by the Examiner Bunyan et al do not disclose EMI shielding yarns being flat in shape or filaments of the yarn being flat in shape as well. As stated by Mr. Takagi in paragraph 11 of his Declaration, Fastenau et al fail to disclose single filaments having W-shapted, elliptical, rectangular or hourglass cross-sections.

As enunciated by Mr. Takagi in paragraph 12 of his Declaration, improving EMI shielding performance is explicitly attained by providing a fabric constructed of flat multifilament yarn composed of a plurality of flat thermoplastic single filaments and subjecting the fabric to a metal coating treatment. Fastenau et al only suggest an industrial fiber comprising a synthetic melt spun polymer and contain no suggestion about metal-coated fabric. Furthermore, the purpose of using the sinusoidal-shaped cross-section in Fastenau et al is improving the strength property, i.e., tenacity, unlike the inventive fabric which is explicitly designed for EMI shielding.

Accordingly, Mr. Takagi concludes, in paragraph 13 of his Declaration, even combining the teachings of Bunyan et al and Fastenau et al fail to suggest to him, one skilled in the art, the features of the presently claimed invention together with the accompanying advantages. Mr. Takagi points out in paragraph 13 of his Declaration the comparative testing set forth in the present application already compares the closest prior art.

Accordingly, in view of the forgoing amendment, accompanying remarks, explicit statements in the final Office Action and enclosed Declaration, it is respectfully submitted all claims presented herein are in condition for allowance. Please contact the

undersigned attorney should there be any questions. A petition for an automatic two month extension of time for response under 37 C.F.R. §1.136(a) is enclosed in triplicate together with the requisite petition fee, papers for filing a Request for Continued Examination (RCE) and RCE filing fee.

Early favorable action is earnestly solicited.

Respectfully submitted,

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OIPE JC102 MAR 31 2004 PATENT & TRADEMARK OFFICE

Attorney Docket No.: 188-84 (S-11-US)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Susumu Takagi et al. Group Art Unit: 1764

Serial No: 09/731,935 Examiner: Wachtel, Alexis A

Filed: December 7, 2000

For: **METAL COATED FIBER MATERIALS**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

## DECLARATION

I, Susumu Takagi, do hereby declare:

1. I am one of the joint inventors of the invention being claimed in the above-identified patent application;

2. I have read and understand the Office Action mailed October 27, 2003 by the Patent and Trademark Office in the above-identified application and the art being applied therein, namely U.S. Pat. Nos. 6,387,523 to Bunyan et al. and 6,147,017 to Fastenau et al. (hereinafter referred to as "Bunyan et al." and "Fastenau et al.");

3. The present invention provides an electrically conductive fabric which maintains flexibility and, at the same time, provides high EMI shielding performance over a wide frequency range;

4. Referring to preferred embodiments of the invention illustrated in the

drawings of the present application, these advantages are explicitly attained by a fabric constructed of flat multifilament yarns composed of a plurality of flat thermoplastic single filaments 1 and a metal coating layer formed on the surface of the fabric. In other words, each of the single filaments in the multifilament yarn is a flat, thermoplastic single filament, having an average flat ratio (L/S) of 1.5 to 5.0 and having a W-shaped, elliptical, rectangular or hourglass cross-section. Furthermore, the multifilament yarn itself, is flat with an average flat ratio (L/S) of 1.2 to 7.0., and the inventive material possesses an EMI shielding performance of at least 70dB in the range of 1 GHz to 15 GHz;

5. In an especially preferred embodiment, the warp has a fabric surface occupancy ratio of 60-90%, the weft has a fabric surface occupancy ratio of 90 to 120%, and the woven fabric has a cover factor of 1000 to 3000;

6. The advantages provided by the present invention have been substantiated by the comparative testing presented in Table 1 of the present application. This comparative testing has been carried out under my direction and control. Referring to these comparative test results, the present application using a chemically-plated multifilament yarn having flat single filaments with an average compression (flat ratio) of 1.5 to 5.0, resulting in the overall multifilament yarn having a flat ratio of 1.2 to 7.0, in addition to enumerated warp and weft surface occupancies, provides a thin, uniform and flexible conductive fabric also possessing high EMI shielding performance over a wide frequency range as opposed to a comparative chemically-plated fabric which does not possess several of these parameters;

7. Bunyan et al. and Fastenau et al. fail to suggest the features of the inventive electrically conductive material and accompanying advantages, for the following reasons;

8. Bunyan et al. do not disclose a flat multifilament yarn, or a yarn

composed of flat thermoplastic filaments;

9. Fastenau et al. contain no suggestion about metal-coated fabric;

10. More particularly, Bunyan et al. form a flame retardant EMI shielding fabric having an electrically conductive first side and a conductive or non-conductive second side. As acknowledged by the Examiner, Bunyan et al. do not disclose the EMI shielding fabric yarns are flat in shape, or that the filaments of the yarn are flat in shape as well. Also, Bunyan et al. fail to disclose the woven fabric being composed of warp and weft yarn having different surface occupancy ratios, as acknowledged by the Examiner. Thus, Bunyan et al. neither disclose nor suggest a flat multifilament yarn being composed of a plurality of flat thermoplastic single filaments;

11. Furthermore, the yarn shown, e.g., in Fig. 5 of Fastenau et al. is certainly not flat while Fastenau et al. fail to disclose single filaments having W-shaped, elliptical, rectangular, or hourglass cross-sections;

12. In particular, one of the important advantages of the present invention is improving the EMI shielding performance. This is attained by providing a fabric constructed of flat multifilament yarn composed of a plurality of flat thermoplastic single filaments and subjecting the fabric to a metal coating treatment. Fastenau et al. suggest only an industrial fiber comprising a synthetic melt spun polymer. Fastenau et al. contain no suggestion about metal-coated fabric. Also, the purpose of the use of the polymer having a sinusoidal shaped cross section in Fastenau et al. is to improve the strength property (i.e., tenacity), unlike the inventive fabric which is explicitly designed for EMI shielding;

13. Accordingly, neither Bunyan et al. nor Fastenau et al. teach or suggest

an electrically conductive material comprising, among other features, a fabric constructed of flat multifilament yarns composed of flat single filaments with a metal coating layer formed on the surface of the fabric. Therefore, even if the teachings of Bunyan et al. and Fastenau et al. are combined, then the features of the claimed invention together with the accompanying advantages would still not be suggested to me, one skilled in the art. It is respectfully submitted the comparative testing set forth in the present application already compares the closest prior art; and

14. All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further these statements are made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and such willful false statement may jeopardize the validity of the application or any patent issued thereon.

March 12, 2004
Date

Susumu Takagi
Susumu Takagi